Biology Paper 1

Form 3

MARCH EXAMINATION 2021 **2 hours**

Additional Materials:

Soft clean eraser
Soft pencil (type B or HB recommended)

Read these instructions first

This paper contains 36 questions. Answer all questions in the spaces provided.

Do **not** use staples, paper clips, and glue or correction fluid.

Any rough working should be done in the rough work booklet provided.

NAME**:** …… DATE: ……

SCORE:

TOTAL MARKS:

Read, understand and attempt ALL questions in the spaces provided.

1. State **three** ways in which proteins are important to plants**. (3marks)**

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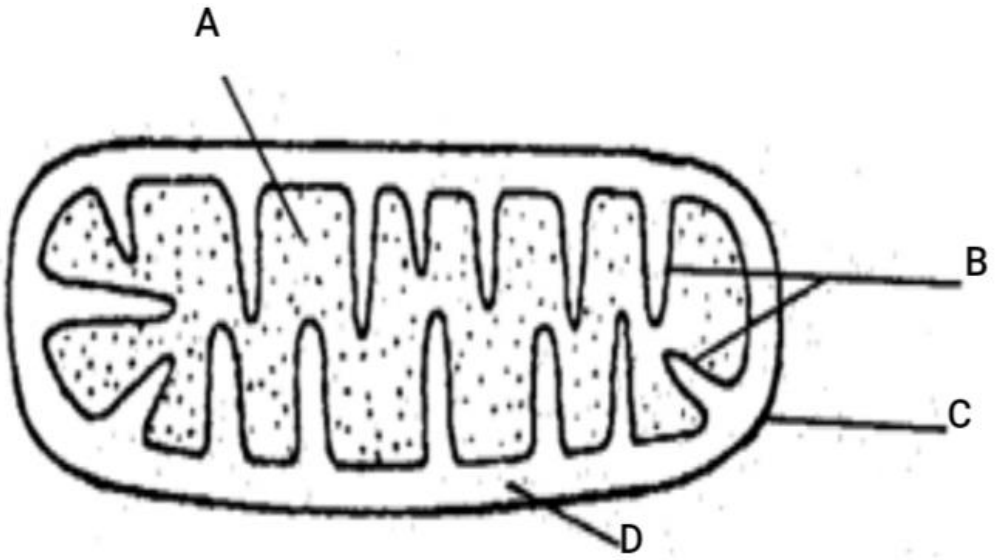
2. The diagram below represents a cell organelle.



a) Identify the organelle. **(1 mark)**

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b) Name the part labelled B. **(1 mark)**

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c) State the function of the part labelled A **(1 mark)**

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3. Define binominal nomenclature**.(1mark)**

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4. Name any **two** problems that animal species overcome by their dispersion. **(2marks)**

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5. Explain why tropical forests do not have undergrowth**.(2marks)**

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6. How is blood pressure generated and maintained in a vein**. (2marks)**

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7. What is the function of catalase? **(2marks)**

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8. (a) State the important of cross-pollination to flowering plants. (1mark)

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(b) How is self-pollination a disadvantage to flowering plants? (1mark)

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9. What is the role of light energy in autotrophic nutrition in spermatophyte? (2 marks)

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10. How is fur important to desert animal, other than in the regulation of their body temperature?(1mark)

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11. What are the functions of named product of white blood cells?(3 marks)

(a) Antitoxin

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(b) Agglutinin

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(c) Lysin

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12. Explain **three** adaptations of cardiac muscles to their function. **(3 marks)**

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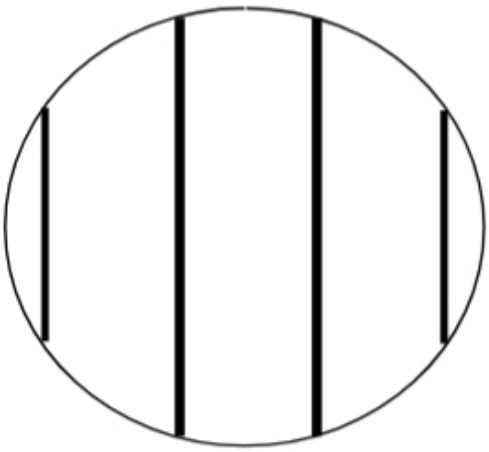
13. A form one student trying to estimate the size of onion cells observed the following on the microscope's field of view



(a) Define the term resolving power.**(1 mark)**

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(b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometres.**(2marks)**

14. What is tidal volume in ventilation in man? **(1mark).**

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15. Define peristalsis and state its importance in the nutrition of mammals.**(2 marks)**

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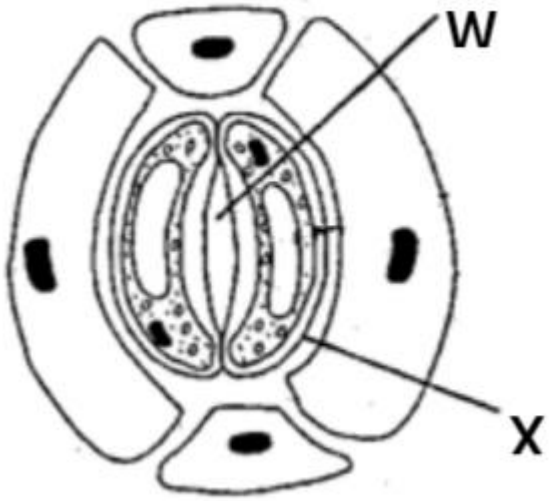
16. The diagram below shows part of plant tissue.



Name cell labelled X and part labelled W. **(2 marks)**

X _____

W _____

17. Why is the liver part of the digestive system? **(2 marks)**

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18. State the importance of cytoplasmic filaments in sieve tube elements**. (1 mark)**

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19. State any **two** characteristics of populations. **(2marks)**

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20. Describe any **two** functions of mitosis? **(2 marks)**

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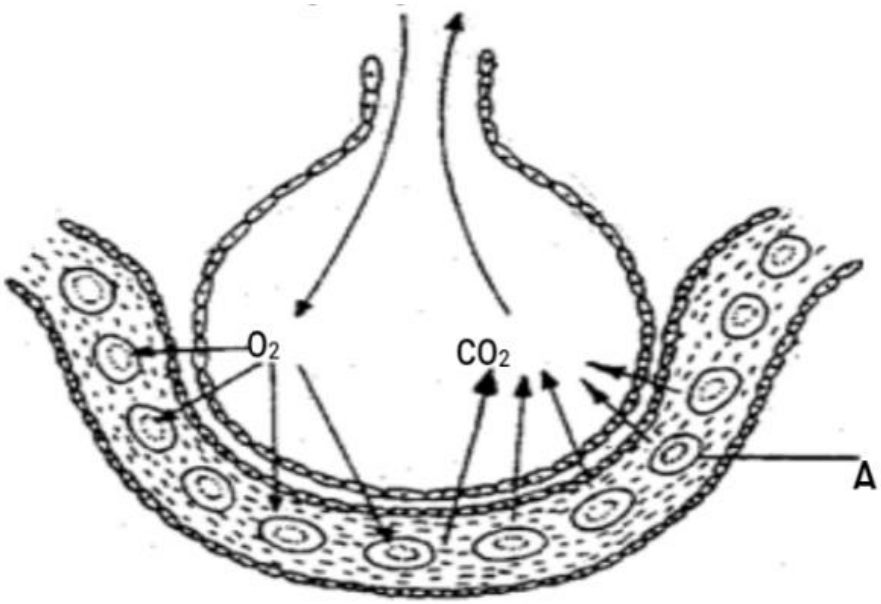
21. The diagram below shows the exchange of gases in alveolus.



(a) State how the alveoli are adapted to their function**.(3 marks)**

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(b) Name the cell labelled A**.(1 mark)**

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22. What are the external conditions needed, by root hair cells, for the uptake of mineral salts ions from the soil? **(2 marks)**

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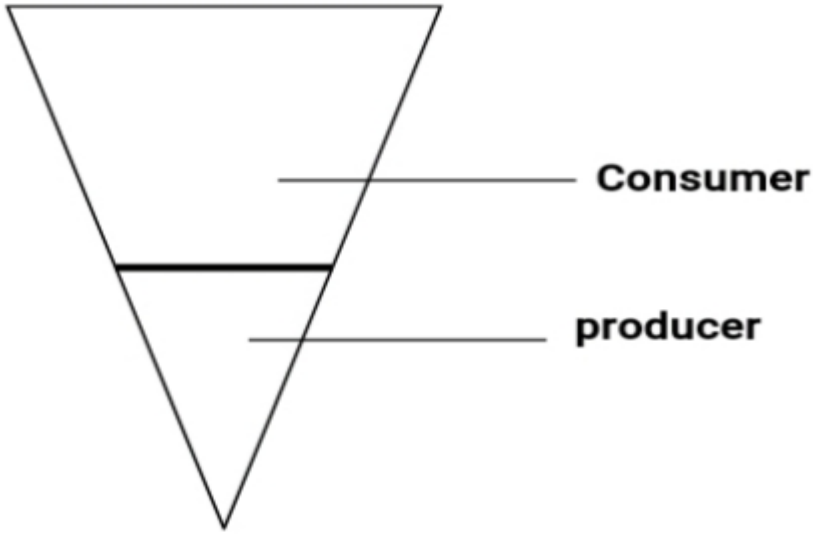
23. The diagram below represents a pyramid of biomass derived from a certain ecosystem.



(a) Suggest the type of ecosystem from which the pyramid was derived.(1mk)

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(b) State the significance of short food chains in an ecosystem.(1mk)

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24. Suggest **two** reasons for the appearance of glucose in the urine of a man. (2 marks)

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25. (a) State the source Carbon (IV) oxide in aquatic ecosystems.(2 marks)

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(b) State the importance of Carbon (IV) oxide to aquatic ecosystems**. (2 marks)**

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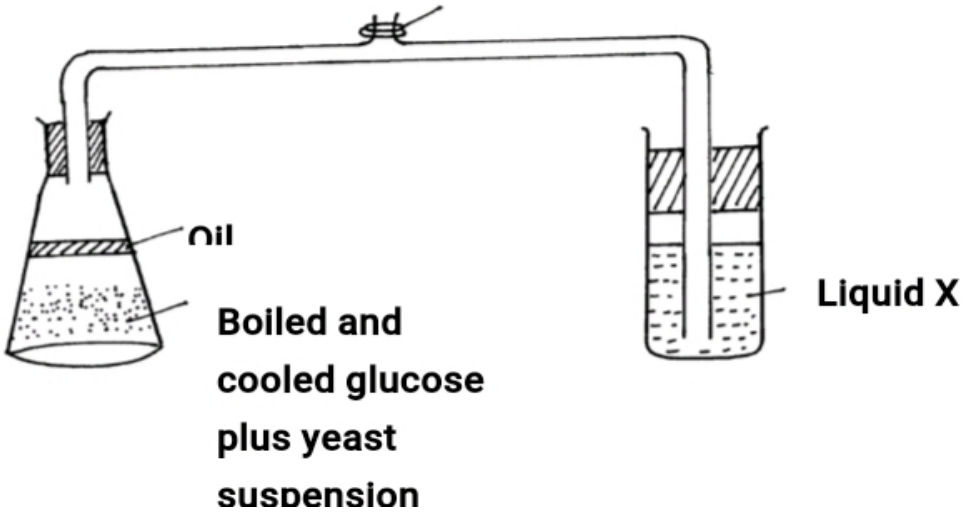
26. The set up below shows apparatus to demonstrate a certain biological process.



(a) What biological process was being investigated in the experiment**.(1mk)**

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(b))Write down a word equation that represents the reaction above**.(1mk)**

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(c) In the above set up, why was it important to boil and cool glucose before adding yeast**.(1mk)**

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27. What is the homeostatic importance of cuticles of leaves?**(2marks)**

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28. Outline **two** functions of parenchyma cells in herbaceous plants**.(2 marks)**

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29. What is the important of diffusion to red blood cells? **(2marks)**

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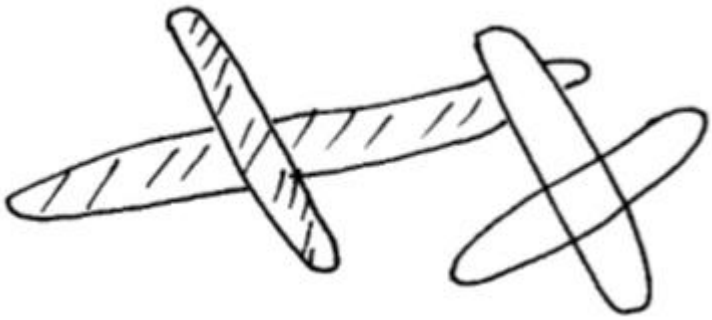
30. The diagrams below show a pair of homologous chromosomes. Study them and answer the questions that follow.



(i) State the phenomenon shown above**. (1mk)**

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(ii) What is the genetic significance of the phenomenon above? **(2mks)**

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31. Account for the thick wall and narrow lumen of an artery. **(2marks)**

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32. How do pathogens that enter the body through the respiratory tract in man prevented from causing diseases?**(1mark)**

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33. Where does the detoxification of ammonia take place in mammals? **(1mark)**

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34. Name the processes that take place in the grana of chloroplast.**(2marks)**

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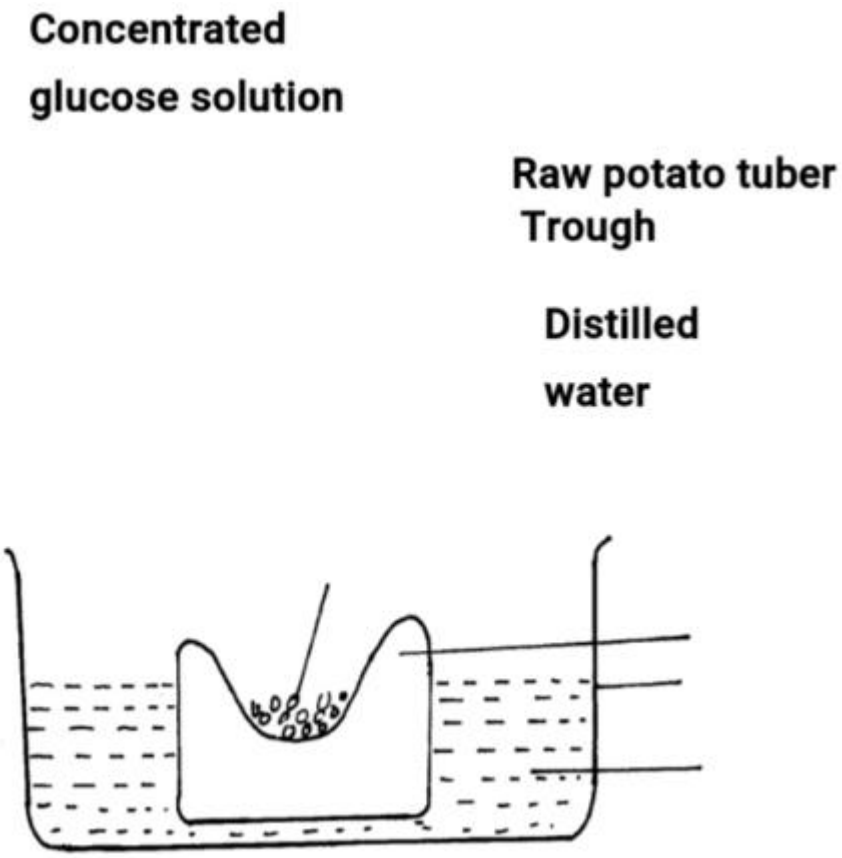
35. The experiment illustrated below was set up to investigate a certain physiological process using a raw tuber.



(a) Suggest a possible physiological process that was being investigated**.(1mk)**

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(b) Explain the results obtained in the above experiment after a few hours**.(2mks)**

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(c) State the observations that would have been made if the experiment was repeated using boiled potato**.(2mks)**

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36. Name the causative organism of the following diseases

(i) Malaria.(1mk)

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(ii) Bilharzia. (1mk)

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